# CHAPTER 2

# PROJECT DESCRIPTION

This is a description of a project to develop occupational health services in community hospitals in industrial areas. Activities at Ban-Chang Hospital, Rayong province are described as a case study.

## 2.1 Rationale and Background of the Project

Occupational health is concerned with health in its relation to work and the working environment. Its range was originally limited to occupational disease or injuries attributable to the work itself, to conditions of work or to the working environment. (L. Parmeggiani 1983)

Occupational Health Service is part of public health service, aimed to take care of working people in agriculture sector, industry sector, commercial sector, and services sector. At the beginning, we emphasized the industrial sector, because there were many problems from machinery and toxics substance used in production. Nowadays, occupational health has expanded into agriculture and service sectors.

People in a community are at risk of the same health problems. However other health problems are caused by occupation. Health problem could be directly caused by occupation, which is called occupational disease, or occupation could stimulate disease, which is called work-related disease. In public health theory, any disease caused by occupation, we will assume as manmade disease. It is necessary to protect worker against manmade disease, especially because of its Public health impact and cost.

The rationale of occupational health service is to develop the following:

2.1.1 Identification of work-place environmental hazards.

2.1.2 Management and control of occupational health problems.

2.1.3 Occupational health service development.

2.1.4 Occupational health service patterns.

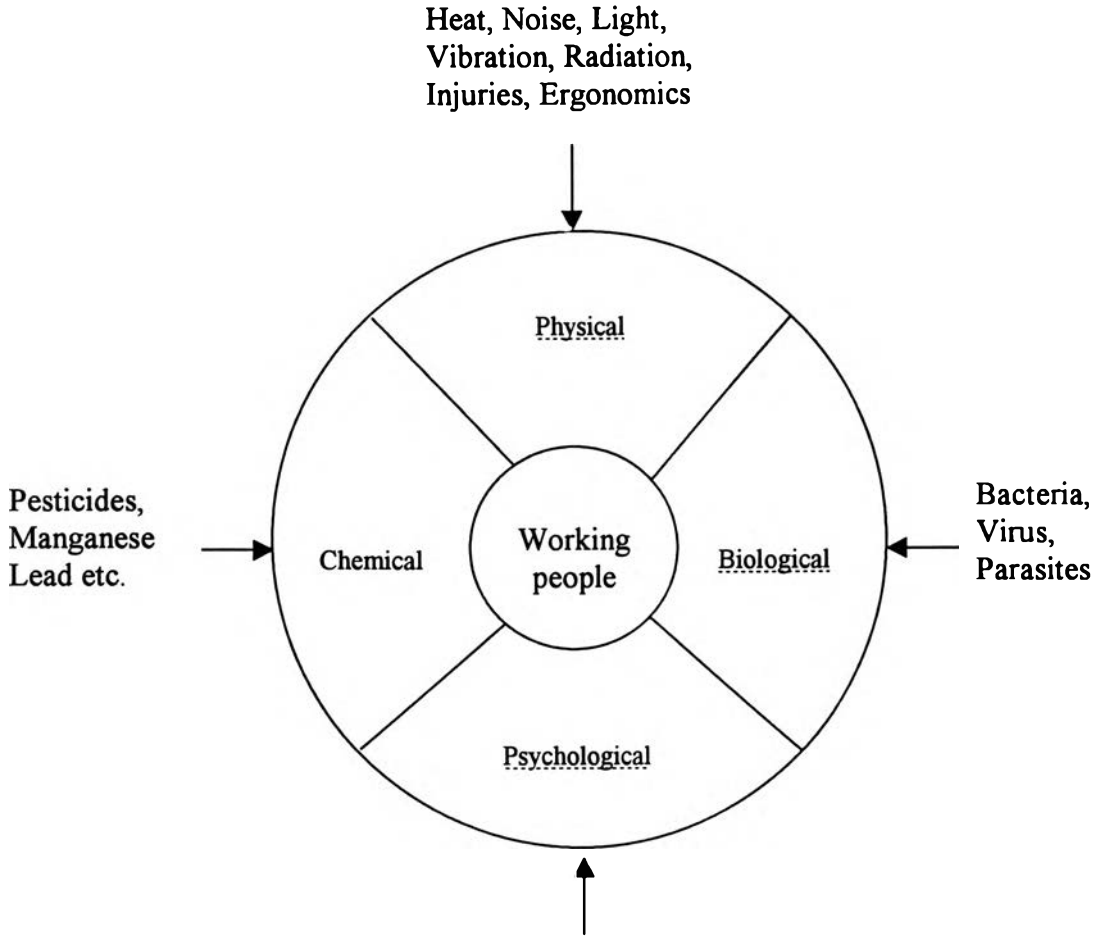
2.1.5 Occupational health in community hospitals.

### 2.1.1 Identification of Work Place Environmental Hazard

We can categorize occupational health hazards as follows (Figure 2.1).

1. Physical health hazards, such as heat over 45°c, noise over 90 decibel and injuries.
2. Chemical health hazards, such as manganese in the environment.
3. Biological health hazards, such as bacteria.
4. Psychological health hazards, such as stress from work.

**Figure 2.1 Work place environmental health hazards to working people.**




(Modified From: Vitaya Yousuk, Occupational Health, Safety and Environment, 1999, pp.26)

### 2.1.2 Management and Control of Occupational Health Problems

(source Sunthorn Supapong, 1998)

Occupational health specialists suggest various ways to prevent occupational disease including environmental protection, elimination of disease, worker protection and separation of elements of disease and workers.

The following area will be surveyed to determine standards for occupational disease precaution

1. Administration
2. Engineering Control
3. Health Education
4. Personal Protective Equipment (PPE)
5. Environmental Monitoring
6. Biological Monitoring
7. Medical Surveillance
8. Legislation
9. Notification

**1. Administration**

The management team concentrates on employees' health, including rules and regulation to protect work disease, cost of health care, equipment for protection. In addition, what are you trying to pay occupational health service, reduce number of poison or toxic or substitution and poisoning.

**2. Engineering Control**

This section concentrate on engineering technology, such as changing from open-air production to under roof production to reduce of dust in the air, changes to new technology, safety operation and maintenance, and industrial ventilation.

**3. Health Education**

This section provides health education to employers and employees.

**4. Personal Protective Equipment**

Work injuries can be prevented by use of Personal Protection Equipment ( PPE) such as earplugs, muffs and eyeglasses. However, low response from employees suggested that all engineering control like be completed before moving to that stage.

**5. Environmental Monitoring survey**

Surveys work place to identify health hazards, anything not up to standard, can be served at the early stage. The monitoring should be done every month, three months, six months and 12 months, depending on the presence of environmental hazards.

**6. Biological Monitoring**

Checking of human tissue samples such as blood, hair and nails, to check level of chemical or metabolites. This can help to identify chemical or hazard in the working environment. However, monitoring also has limitations, which can be identified.

**7. Medical Surveillance**

7.1 Pre-employment Examination. Each new employee has to be set on complete check up with medical doctor. The results will help to determine whether that person is suitable for that position. Moreover, the results can be use as data in the future.

7.2 Periodic Examination. Each employee has regular medical check-up to find any health problems or diseases at the early stage. Employees may need to transfer to other position or departments to prevent health effects from the work environment.

7.3 Follow up services after therapy or medical treatment employees should be used as a medical check-up to determine whether he/she can remain in the same position.

7.4 Medical check-up before retirement. Medical check-up before retirement aimed to evaluate people health that cause from work disease.

**8. Legislation**

The government set up law regulating working hours, welfare, wages, and health service fee for disease related to work.

**9. Notification for Work Disease**

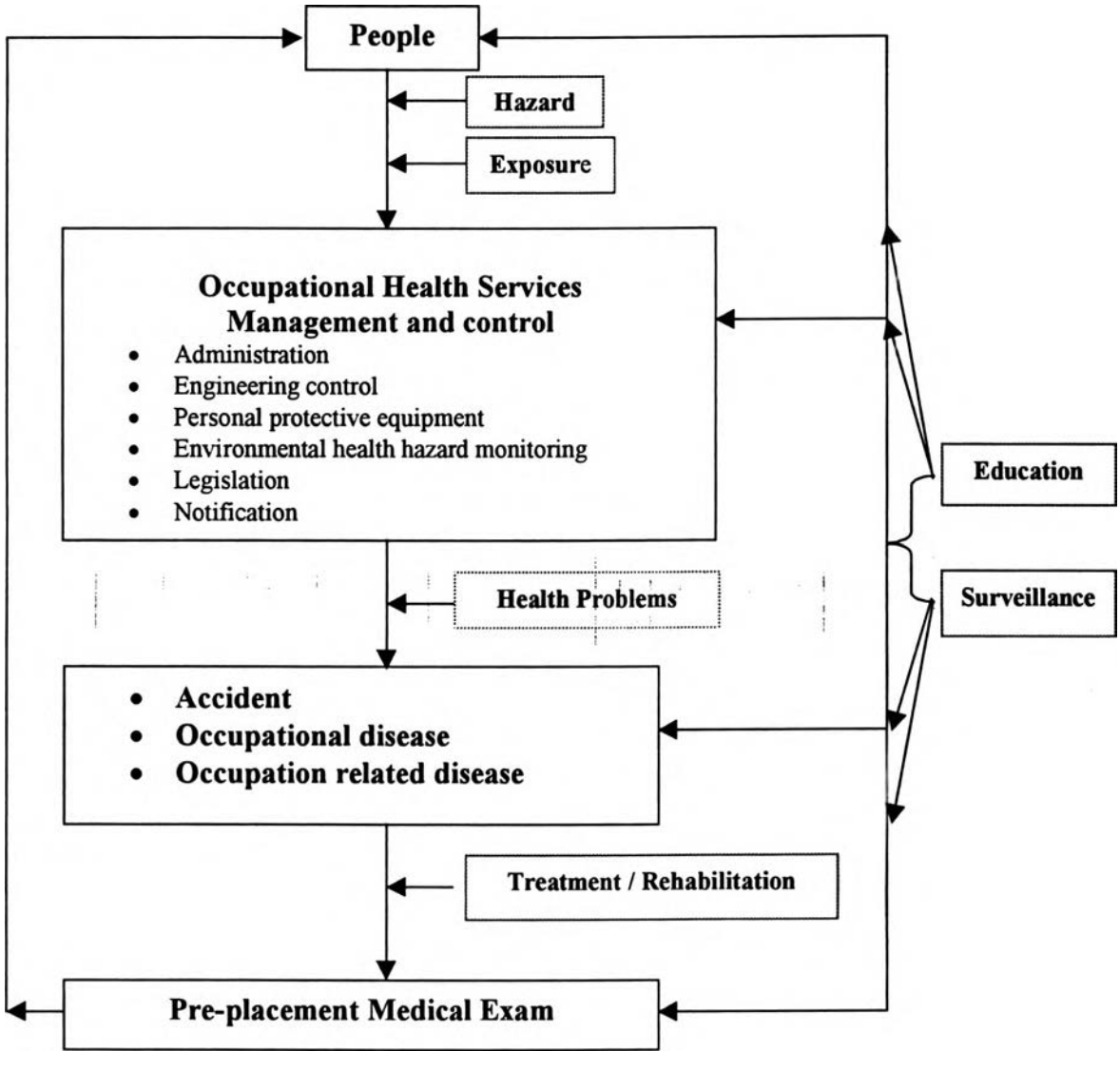
When work disease happen in any company, the company has to report the disease to departments such as Occupational Health Division, Epidemiological Division, Provincial Health Office, and Provincial Labour and Social Welfare. The departments will cooperate between each other in order to protect the spread of the disease.

### 2.1.3 Concept of Occupational Health Service Development

The concept of occupation health service development aims at working people in protections themselves from the hazard. The working people exposing to environmental hazard can lead to health problems. These problems can be solved by management and control in area of occupational health service which consist of

administration, engineering control, personal protective equipment, environmental hazard monitoring, legislation, and notification. In addition, treatment and rehabilitative can be used in the work accident, occupational disease and occupational related disease. The first priority for health protection is the health education and health surveillance for working people. This concept is described in figure 2.2

**Figure 2.2 Concept of occupational health service development**




(**From:** Summary Report on the Conference of Occupational Health Project, Rural Health Division Ministry of Public Health, 1998)

### 2.1.4 Occupational Health Service pattern

(Bureau of public Health policy and plan, 1999)

The service has to be done by occupational health professionals either one person or as part of other services. There are many model depend on work place and industrial job. The 7 main models are.

1. In-plant service model
2. Group inter-enterprise service model
3. Industry oriented service model
4. Community health care service model
5. Private health care service center model
6. Elementary public health service model
7. Social security service model

These groups adapt a work strategy which concentrate on, the following:

1. Cooperation between public sector, employer, employee and analyst to set objectives and policy for the service.
2. Employer working environment, development is responsible including for the emergency preparedness.
3. Employer and staff committees to set up training on disease protection and safety on work.
4. Employees have the right to move from dangerous areas or risk to their health with the permission of employer. Then they have the right to do anything.

### 2.1.5 Community Hospital in Occupational Health Service Roles (Rural Health Division, 1994)

Community hospitals have to provide both medical care and occupational health services for the sub-province area. Therefore, it has the following task:

1. Work-disease Investigation.
2. Medical treatment for occupational illness.
3. Transfer patient for further treatment.
4. Medical check-up before employment and yearly medical check-up for workers.
5. Disease investigation support.
6. Special medical services for worker.
7. Law enforcement.
8. Other

Nowadays, it's not clear about number of staff for occupational health service. However, they try to solve problem in each areas depending on demand.

In most community hospitals, occupational health staff work under the control of Sanitation and Disease Protections section and different staff from other sectors depending on executive management's framework. The occupational health services were often different. Unfortunately due to budget limitation and different staff skills, quality or quantity of occupational health service were often different.

Ban-Chang Community Hospital offered occupational health services since 7th (B.E. 2535-2539) and National Health Plan 8th (B.E. 2540-2544) National Health Plan. However it had never been evaluated

However, it is necessary to understand all details such as physical, social, economic, technology and occupational health service of the hospital before further analysis.

Therefore, in order to develop an appropriate model for occupational services at other community hospital, programs at Ban-Chang community hospital needs to be assessed. This project deals with an evaluation strategy that uses participatory approach in monitoring and evaluation methods.

**1. Physical Characteristic**

Ban-Chang Hospital is located 30 kilometers from Rayong province 180 km. from Bangkok and 12 km. from Mabtapud Industrial Estate. The hospital has a capacity of 120 beds with 179 government service officers: 4 physicians, 86 nurses, 2 dentists, 3 pharmacists, and other 84 related officers.

Four nurses from nursing section, fulltime respond for occupational health. The nurses are experienced in occupational disease investigation in industrial areas. Pollution arises from petrochemical industries at Mabtapud industrial estate area in Mabtapud community. Table 2.1 and table 2.2 indicate the breakdown of the number of

factories by number of employee and number of factories by risk factors, respectively. Information in table 2.1 and table 2.2 were provided by Ban-Chang Hospital Staff.

**Table 2.1 Number of factories are according to number employee**

| Number of staff | Number of factories |
|---|---|
| Less than 50 | 46 |
| 50-100 | 1 |
| 100-200 | 1 |
| More than 200 | 3 |

**Source:** Ban-Chang Hospital

**Table 2.2 Number of factories are according to risk factors**

| Risk | Number of Factory |
|---|---|
| Chemical | 30 |
| Dust, Smoke, Fumigant | 43 |
| Noise | 38 |
| Light | 9 |
| Ergonomics | 52 |
| Processing Engine Condition | 5 |

**Source:** Ban-Chang Hospital)

Ban Chang Hospital uses the community health care model to service local people. The services are a combination of community medicine and in-house & mobile

services. Between 1996 and 1998 work injuries were the most frequent of all injuries (Ban-Chang Hospital surveillance report, 1999) which related to national problems.

**2. Organization Society**

The hospital is a medium size medical facility for sub-provincial areas. Since occupational health has not been officially established in hospital organization chart, the management had set up teamwork with vision of occupational health service. The job was successful, thus, Thai Medical Council allowed to set up occupational health training in Ban-Chang Hospital as part of residency training for occupational health medicine in Faculty of Medicine, Chulalong-korn University.

**3. Organization Economic**

From record shown that estimated maintain fund and expenses between 1997, 1998 and 1999. Ban Chang Hospital had not expense all the fund so there were about 4 million Baht in 1997, 2 million Baht in 1998 and 6 million Baht in 1999, left for hospital to use with other purposes.

**4. Organization Technology**

Ban Chang Hospital adapted information technology to use within the hospital with the purpose of process re-engineering. As a result, 2 jobs could be started at the same time. The job that could start at the same time had to have category, as the following:

1. Computer based record keeping
2. Multi Order Medical Records

3. Real Time Bedside Record

**5. Communication** consists of sound system, telephone answering machine, conference, and newsletter.

**6. Education** There are educational exhibition displayed inside the hospital.

**7. Service Development** aims at warm welcome and greeting to all people including information inquiring.

**8. Service output**

In 4 years of the service from Ban Chang Hospital, the top ten diseases derived from surveillance of 100,000 patients, are shown in Table 2.3

**Table 2.3 Top ten disease per 100,000 persons at Ban Chang District between 1996-1999.**

| Disease | 1999 | | | 1998 | | | 1997 | | | 1996 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | Qty. | Ratio | No. | Qty. | Ratio | No. | Qty. | Ratio | No. | Qty. | Ratio |
| Diarhea | 1 | 1,183 | 2,582.20 | 2 | 975 | 2,136.90 | 2 | 1,402 | 3,072.80 | 2 | 1,064 | 2,763.40 |
| Car Accident | 2 | 926 | 2,021.30 | 3 | 521 | 3,899.10 | 3 | 641 | 5,493.20 | 3 | 620 | 6,665.90 |
| Work Accident | 3 | 456 | 995.30 | 1 | 1836 | 4,024.10 | 1 | 4,071 | 5,333.60 | 1 | 3,607 | 5620.70 |
| AIDS | 4 | 379 | 827.30 | 4 | 397 | 870.10 | 5 | 316 | 692.60 | 6 | 224 | 581.70 |
| Food Poisoning | 5 | 372 | 812.00 | 6 | 152 | 333.10 | 4 | 361 | 791.20 | 5 | 223 | 579.10 |
| Pneumnia | 6 | 139 | 303.40 | 7 | 104 | 227.90 | 8 | 75 | 164.30 | 8 | 38 | 98.60 |
| T.B | 7 | 138 | 301.20 | 8 | 98 | 214.70 | 7 | 84 | 184.10 | 9 | 34 | 88.30 |
| Influenza | 8 | 66 | 144.00 | 9 | 76 | 166.50 | - | - | - | - | - | - |
| Conjunctivties | 9 | 64 | 139.70 | 5 | 200 | 438.30 | 9 | 51 | 111.70 | 4 | 520 | 1,350.50 |
| Dysentery | 10 | 61 | 133.20 | 10 | - | - | 6 | 105 | 230.10 | 7 | 95 | 246.70 |

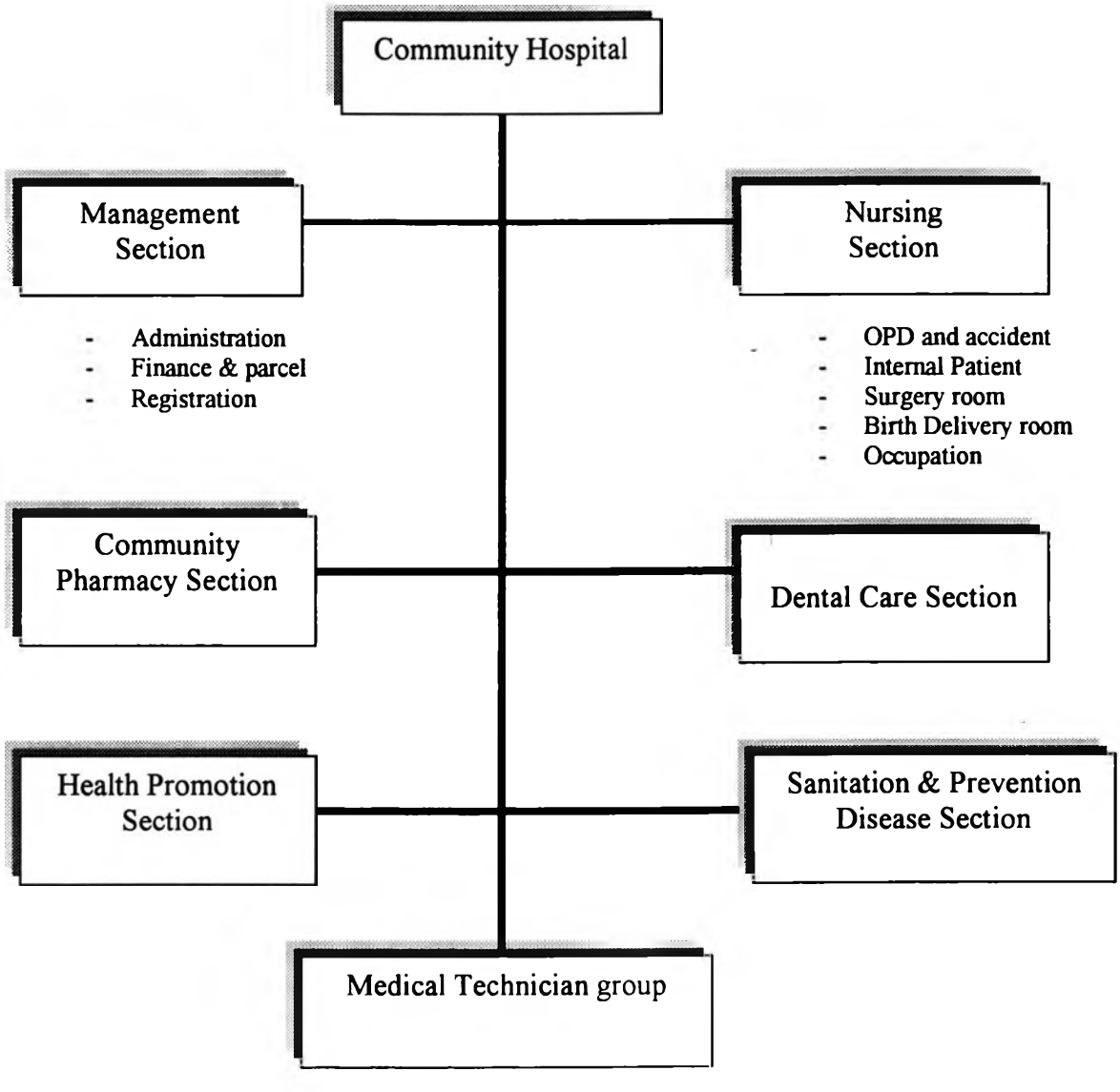
**Source:** Report on Epidemiologist at Ban Chang Hospital. Provincial Health Rayong, (report form E 506, 507, 506/1)

From table 2.3, shown that work accident was the first problem for 3 consecutive years (1996-1998), in1999 the number decline to third position this may be caused by economic crisis.

### 9. Organization

Ban-Chang organization chart show in figure 5

**Figure 2.3 Ban-Chang Hospital Organization Chart**




**Source:** Modified Permanent Secretary Ministry of Public Health, 1990

## 2.2 Goal & Objective

The goal of this project is to determine whether 90% of occupational health activity at Ban-Chang hospital has reached the standard.

The Objectives are:

1. To develop standards of occupational health service for community hospital in industrial areas.

2. To set up a pilot project implement to occupational health service in community hospitals in industrial areas;

3. To compare the occupational health services six months after implementation of service and standard of clinical care establish by Ministry of Public Health.

4. Suggestion improvement.

## 2.3 Approach Method and/or Techniques

**2.3.1 Case study:** The project used participatory evaluation and monitoring in case study format.

The case study can help in understanding the project with information on behavior, experience assisting bring in occupational health service to specialist.

### 2.3.2 Function and role of project team

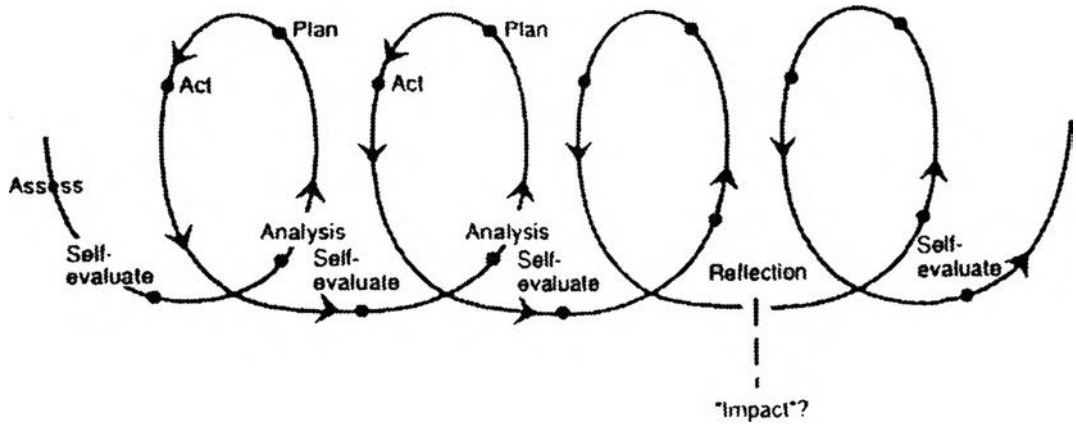
- Facilitator for the study team.
- Project teams in Ban-Chang hospital compose of doctor, nurse, and laboratory technician, participatory development clinical guideline of occupational health service.
- Participatory implementation program under clinical guideline of occupational health service and evolution.

### 2.3.3 Method

**Step 1** Clarifying basic concepts of occupational health service by studying the situation and feasibility of such a project. Then, approval was attained from the chief of the hospital.

**Step 2** The principle method consisted of participatory monitoring and evaluation cycle. Participatory Monitoring and Evaluation is a process of collaborative problem solving through the generation and use of knowledge. It is a process that leads to corrective action involving all levels of stakeholders in shared decision making. (Deepa Narayan, 1993). There were 5 activities: 1. Assess, 2. Self-evaluate, 3. Analysis, 4. Plan and 5. Action (Figure 2.4).

**Figure 2.4 The participatory Monitoring and Evaluation Cycle**




**Source:** From Jacob Pfohl, 1986, "Participatory Evaluation: A Users Guide," PACT Publications, New York, from an evaluation report by Ron Sawyer, Bangladesh, 1978.

**1. Assess**

Assess; Writing a data collection protocol to assess progress to ward standards. This was developed by a team consisting of:

one facilitator (Project Study)

one Head Nurse of Ban Chang Hospital

one head nurse of occupational health section

one head nurse of health official technique

The standards were the same as the Ministry of Public Health in developing service units and rural health in provinces. The standard will be described in standardize of job category.

Before the standards were launched for public use, it was given final form by specialists. Then facilitator bring to meeting of standardize teamwork. Final adjustment of standard occurred during the meeting for each hospital. These standard were called as process of participatory on teamwork. The checklist was created from the standards by team in consultation unit several specialists. The standards were the following categories of services that should be offered at the hospital.

**Standardize of job category**

1. Organization and Organization Management
2. Information Center of Occupational Health, Poisoning Substance, Occupational Medicine, Safety and Environment for useful service.
3. Occupational Safety service in Hospital.
4. Industrial Hygiene Service in Hospital.
5. Occupational Medicine Service in Hospital.
6. Occupational Medicine Service for Labour Force.
7. Human Resources Development for Occupational Health, Occupational Medicine and Environmental Medicine.
8. Occupational Health Education Service.
9. Investigate / research for Occupational Health Improvement.
10. Equipment of Occupational Health for Work Environment Measurement and sampling and physical check-up equipment.

Each of these categories include a list of required activities.

**Process of standardize and checklist**

Set up meetings every Friday in September 2000 for 3 consecutive weeks. The meetings were about 3 hours/long.

**2. Self-evaluate**

Ban-Chang occupational health team used the checklist (appendix 1) as a self-evaluation. It found the following;

1. Organization and Organization administration. There were 16 activities, however only 13 activities were done. Because some the following procedures were missing or incomplete need to be improved.

1.1 Job description for staff

1.2 Occupational health and safety plan.

1.3 Guideline for occupational health action.

These were caused by lack of cooperation.

2. Information center of occupational health, poisoning substance, occupational medicine, safety and environment. There were 6 activities, all being carried out.

3. Industrial health safety service. There were 5 activities, however only 3 activities were done. The following were missing or incomplete:

3.1 Fire evacuation plan

3.2 Fire action rehearsal

These are caused also by lack of cooperation.

4. Industrial hygiene service. There were 13 required activities, however only 8 activities were being done. The weaknesses that need to be improved were the following;

4.1 Job safety analysis area

4.2 Environmental testing

4.3 Participatory environmental health standardization and control by organizational networking.

4.4 Evaluation and monitoring in problem solving

4.5 Occupational medicine risk management.

These are caused by lack of cooperation.

5. Occupational medicine service in hospital. There were 4 activities, only one activity being done. The weakness that need to be improved as the following;

5.1 Official pre-placement check up

5.2 Personnel sickness analysis

5.3 Immunization for treatment staff exposed to infections disease

These are caused by lack of cooperation.

6. Occupational medicine service. They carried out 37 of 40 listed activities. Areas that need to be improved were the following;

6.1 Preparation plan for accident in written

6.2 Mass casualty internal plan exercise each year

6.3 Lack of mass casualty plan exercise between organizations

These are caused by lack of occupational Medical Doctor.

7. Occupational environment and medical personnel development. They carried out all 10 activities.

8. Occupational health education service. They were doing 5 out of 6 activities. The activities need to be improve were the following

8.1 Training for community leaders. This is caused by lack of budget support.

9. Problem solving by researcher. One of 2 activities was being. The activities need to be improved were the following;

9.1 Environmental disease identification, caused by plan for next project.

There were 102 activities in 9 categories, of which they did 84 activities (82.35%). In addition, adequate support equipment was available (Table 2.4). The 18 areas in which standards were not being met.

**Table 2.4 Cause of problems and conflicts**

| No | Problems and Conflicts | Cause | Remarks |
|---|---|---|---|
| 1 | Lack of job description | Lack of cooperation | Decision making by facilitator and main actor |
| 2 | Lack of occupational health and safety plan in hospital | Lack of cooperation | |
| 3 | Lack of guidelines for occupational health action | Lack of cooperation | |
| 4 | Lack of official on fire evacuation plan | Lack of cooperation | |
| 5 | Lack of fire reheasal plan | Lack of cooperation | |
| 6 | Lack of job safety analysis | Lack of personnel | |
| 7 | Lack of environmental testing | Lack of personnel | |
| 8 | Cooperation with other division concerned with standards of environmental controlling | Lack of personnel | |
| 9 | Lack of evaluation and monitoring in environmental problem solving | Lack of personnel | |
| 10 | Eliminate all risk to occupational medicine at the hospital | Lack of personnel | |
| 11 | Lack of official pre-placement exam for staff | Lack of awarness | |
| 12 | Lack of personal sickness analysis | Lack of awarness | |
| 13 | Lack of immunization by risk factor to officer | Lack of awarness | |
| 14 | Lack of preparation plan for accident in written | no written plan | |
| 15 | Lack of mass casualty internal plan exercise each year | no written plan | |
| 16 | Lack of mass casualty plan exercise between organization | no written plan | |
| 17 | Lack of occupational health education in community leader | Lack of budget support | |
| 18 | Lack of health service research | Plan of next project | |

### 3. Data Analysis

Basic statistics (frequency and percentage) were used to analyze the data. The evaluation score could be identified as:

1 = activity was being done

a = lack of personnel

b = lack of knowledge or training

c = lack of equipment and financial budget

d = other

Analyzing checklist data found some activities that need to be developed to meet standards. Please see the next table.

**Table 2.5 Result of evaluation of current occupational health as compared to Ministry of Public Health standard.**

| No. | Categories | Evaluation | | |
|---|---|---|---|---|
| | | Total Scare | Score | Percentage |
| 1 | Organization and organization management | 16 | 13 | 81.52% |
| 2 | Information center of occupational and environmental health, hazard occupational and environment medicine | 6 | 6 | 100% |
| 3 | Occupational health and safety, service in hospital | 5 | 3 | 60% |
| 4 | Industrial hygiene service in hospital | 13 | 8 | 61.5% |
| 5 | Occupational medicine service in hospital | 4 | 1 | 25% |
| 6 | Occupational health service for working people | 40 | 37 | 92.5% |
| 7 | Personnel Training | 10 | 10 | 100% |
| 8 | Occupational health education service | 6 | 5 | 83.3% |
| 9 | Investigation/ research for occupational health improvement in local area | 2 | 1 | 50% |
| 10 | Occupational health equipment for environmental measurement sampling and physical check up | n/a | adequate | n/a |
| Total | | 102 | 84 | 82.35 |

From Table 2.5, one can see that Ban Chang hospital has adequate of standard equipment, and information center and human resource development are 100% of standard service and serve for activities about 82.35% of standard.

Occupational health service categories compare by result and standard were follow

1. Occupational medicine service in hospital 25%
2. Investigation/research for occupational improvement 50%
3. Occupational safety in hospital 60%
4. Industrial hygiene service in hospital 61.5%
5. Organization and organization management 81.52%
6. Occupational health education service 83.3%
7. Occupational health service for Labour force 92.5%
8. Information center of occupational health, poisoning substance 100%
9. Human resource development for occupational health, occupational medicine, and environmental medicine 100%

**4. Plan**

Result from the self-evaluation found 18 activities that needed to be improved. Therefore, the facilitator and main actor cooperated to plan arrange weak up to standard by on the job training, occupational health committee workshops, job responsibility and monitoring (table 2.6)

**Table 2.6 Plan (Means for resolution)**

| No | Procedure Plan | Time | Responsibility Officer |
|---|---|---|---|
| 1 | Job responsibility assessment | Nov-00 | Udomlux |
| 2 | Occupational health and safety action plan | Nov-00 | Udomlux |
| 3 | Guideline for occupational action | Nov-00 | Udomlux |
| 4 | Fire evacuation plan document | Nov-00 | Udomlux |
| 5 | Fire drill plan | Feb-00 | Udomlux co-ordinator |
| 6 | Job safety analysis | Jan. - Feb. 01 | Udomlux |
| 7 | Environment testing | - | acting in this project |
| 8 | Participatory environmental health standardization and control by participatory networking | Jan. 01 | Jutamas |
| 9 | Evaluation and monitoring of problem solving process | Dec. 00 | Jutamas |
| 10 | Occupational medicine risk elimination | Dec. 00 | Shavalnus co-ordinator |
| 11 | Appointment of co-ordination of conduct pre-employment orientation for menu staff | Dec. 00-Aug. 01 | Shavalnus |
| 12 | Personnel sickness analysis | Jan., Apr., Jul.01 | Shavalnus |
| 13 | Immunization for exposed staff | Nov. 00 | Shavalnus |
| 14 | Massive accident service plan document | Dec. 00 | Shavalnus |
| 15 | Internal massive accident service drill plan | Feb. 01 | Shavalnus |
| 16 | Massive accident service drill plan by organization networking | Mar. 01 | Shavalnus co-ordiator |
| 17 | Occupational health education in community | Jan. 01 | Pornpen |
| 18 | Health service research | Oct. 2001 | Karnjana |

Table 2.6, Shows details of activity, timing and means official responsibility, and one activity required co-ordination with external hospitals the massive casualty exercise plan.

**5. Action**

Ban-Change team implemented the standard in 6 months. Therefore, it was necessary to act by self-development. Facilitator took his role in monitor the process every two weeks.

5.1 Time April 2000 till March 2001 (Table 2.7)

5.2 Monitoring Facilitator had to either attend a meeting with main actors or have a conversation over the telephone 2 times/month starting May 2000. The meeting aimed to follow up of project development, problem solving in term of both presentation as rule of the job and case study.

5.3 Evaluation Facilitator and teamwork need to investigate job or activity in the project together whether the project worked continuously. They had to answer questions of what, who, where, when, and how. Problem evaluations were adapted for problem solving.

## 2.4 Budget

In order to implement the project, it was necessary to provide a budget, as the follows.

1) Preparation

1.1 Stationery expenses such as paper, photo copy, transportation to library and conference expenses amount 5,000 Baht.

1.2 Conference between team work and other concerned, 4 persons, 4 times, each time per day, details as follow:

- Coffee break included soft drink, according to the government budget, 2 meals, each cost 50 Baht.

  4 person x 50 Baht x 2 meal x 4 days = 1,600 Baht

- 1 lunch for 3 person x 100 Baht = 300 Baht
- Transportation (round trip) 400 Baht/day x 4 days = 1,600 Baht

  Total cost for preparation 3,500 Baht

2) Process

2.1 Budget such as training expense, training after found the problem, stationery, medical equipment, and walkthrough expenses.

2.2 Follow up:

- Material and document for the project amount 3,000 Baht
- Coffee break included soft drink, according to the government budget plan, 2 meals
- 50 Baht/ meal x 3 persons x 4 meals amount 600 Baht
- 1 lunch for 3 person x 100 Baht = 300 Baht x 4 times = 1,200 Baht
- Allowance, transportation (round trip), accommodation 1 night

  90 Baht + 400 Baht + 400 Baht = 890 Baht

  Total expenses during follow up process 5,990 Baht

3) Post procedure

Prepare summary in form of document in order to present to management and information for other community hospitals 75 copies, 100 Baht/copy total amounts 7,500 Baht. Grand total 21,990 Baht

## 2.5 Potential Benefit

1) To promote occupational health teamwork at the Ban-Chang Hospital with skill and knowledge of occupational health development. Participatory monitoring affects efficiency and sustains behavior managerial change.

2) To improve standards of occupational-health service at Ban-Chang Hospital, Rayong Province.

3) To adept this research to assist other community hospitals in an industrial areas.

4) To create commitment confidence in quality of occupational health services and occupational medicine, especially in industrial areas.

**Table 2.7 Project Activity plan with time table**

| No. | Plan/Activities | 2000 | | | | | | | | | 2001 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Apr. | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar |
| 1 | Situation analysis and basic concept studied | | | | | | | | | | | | |
| 2 | Project Proposal | | | | | | | | | | | | |
| 3 | Project approval | | | | | | | | | | | | |
| 4 | Project work shop meeting time | | | | | | | | | | | | |
| | 5.1 Review of Standards | | | | | | | | | | | | |
| | 5.2 Checklist | | | | | | | | | | | | |
| | 5.3 Self-evaluation | | | | | | | | | | | | |
| | 5.4 Analysis of data | | | | | | | | | | | | |
| | 5.5 Planning | | | | | | | | | | | | |
| | 5.6 Acting | | | | | | | | | | | | |
| | - Occupational Health lecture | | | | | | | | | | | | |
| | - Committee conference | | | | | | | | | | | | |
| | - Responsibility and acting | | | | | | | | | | | | |
| 5 | Monitoring | | | | | | | | | | | | |
| | Meeting 1 | | | | | | | | | | | | |
| | Meeting 2 | | | | | | | | | | | | |
| | Meeting 3 | | | | | | | | | | | | |
| | Meeting 4 | | | | | | | | | | | | |
| 6 | Project evaluation | | | | | | | | | | | | |
| | - Compare pre-post standard acting | | | | | | | | | | | | |
| | - Out come analysis | | | | | | | | | | | | |
| 7 | Discussion/conclusion /recommendation | | | | | | | | | | | | |